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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|-------------------------|------------------|
| 10/822,191 | 04/09/2004 | Joseph Mazzochette | 14123-19 | 2359 |
| 7590 | 10/18/2005 | | EXAMINER | |
| DOCKET ADMINISTRATOR LOWENSTEIN SANDLER PC 65 Livingston Avenue Roseland, NJ 07068-1791 | | | LEE, GUNYOUNG T | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2875 | |
| | | | DATE MAILED: 10/18/2005 | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-----------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/822,191 | MAZZOCCHETTE ET AL. |
| | Examiner | Art Unit |
| | Gunyoung T. Lee | 2875 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-9 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-9 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 04/09/2004 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 04/09/04 & 09/05 08/15/05
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: the "heat spreader" in claim 1, lines 3-4 & line 9 and in claim 2, lines 12-13. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: two different characters "41" in the specification page 4, line 4 and "43" on the same page, line 7 have both been used to describe the "troughs" in Fig. 4. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 5-6 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Ignatius et al. (US 5,660,461).

5. In regards to claims 1, 5-6 and 9, Ignatius et al. disclose an array of optoelectronic devices having:

- A substrate (Fig. 4, 10, 12, 14, 16, 18) having a surface and including a highly thermally conductive heat spreader (col. 2, lines 26-28);
- A plurality of light emitting diodes (LEDs) (Fig. 6, 32, 34, 36, 38, 40) supported by the surface, the LEDs arranged in an array to provide illumination (col. 4, lines 22-29);
- At least one reflective barrier (Fig. 6, 42) at least partially surrounding each LED (Fig. 6, 32, 34, 36, 38, 40), the reflective barrier (42) shaped to reflect away from the LED light emitted by other LEDs in the array;
- The LEDs (Fig. 6, Fig. 6, 32, 34, 36, 38, 40) and the reflective barrier (42) thermally coupled to the heat spreader (Fig. 4, 10, 12, 14, 16, 18) to dissipate heat generated by the LEDs (col. 2, lines 26-30);

- Wherein at least one reflective barrier (Fig. 6, 42) comprises an array of cups (44, 46, 48, 50, 52), each cup substantially peripherally surrounding an LED (32, 34, 36, 38, 40) to reflect light away from adjacent LEDs;
- Where the at least one reflective barrier (Fig. 6, 42) is shaped to provide directional illumination.

6. Claims 1, 3-7 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Stopa et al. (US 6,318,886).

7. In regards to claims 1, 3-7 and 9, Stopa et al. disclose a high flux LED assembly having:

- A substrate (Fig. 6, 48) having a surface and including a highly thermal conductive heat spreader (40) (Abstract, lines 6-8);
- A plurality of light emitting diodes (LEDs) (Fig. 6, 30) (Fig. 3) supported by the surface, the LEDs arranged in an array to provide illumination (col. 3, lines 50-52);
- At least one reflective barrier (Fig. 6, 10) at least partially surrounding each LED (30) the reflective barrier (Fig. 3, 10) shaped to reflect away from the LED light emitted by other LEDs in the array;
- The LEDs (Fig. 6, 30) and the reflective barrier (10) thermally coupled to the heat spreader (40) to dissipate heat generated by the LEDs (col. 2, lines 13-28);

- Wherein the at least one reflective barrier (Fig. 3, 10) comprises a periodic array of troughs (14) and reflective ridges (Fig. 3), the ridges shaped to reflect away from an LED light from an LED in an adjacent trough (14);
- Wherein at least one reflective barrier (Fig. 3, 10) comprises an array of cups (12), each cup (12) substantially peripherally surrounding an LED to reflect light away from adjacent LEDs;
- Wherein the at least one reflective barrier (Fig. 3, 10) comprises a plurality of reflective circular sectors (Fig. 4A, 18, 20) arranged in a circle, each reflective sector shaped to reflect away light from other sectors in the array;
- Where the at least one reflective barrier (Fig. 7, 10) is shaped to provide directional illumination.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stopa et al. (US 6,318,886) as applied to claim 1 above, and further in view of Mazzochette et al. (US 2004/0222433).

11. In regards to claim 2, Stopa et al. disclose the invention substantially as claimed except for a low temperature co-fired **ceramic** on metal (LTCC-M) heat spreader. However, Stopa et al. disclose that the heat spreader (Fig. 6, 40) comprises a thermally conductive **ceramic** (col. 4, line 66 – col. 5, line 2). Mazzochette et al. disclose light emitting diodes packaged for high temperature operation having an array of LTCC-M heat spreader (Fig. 9, 90) (paragraph 0005, lines 13-16). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the LTCC-M heat spreader of Mazzochette et al. for the high flux LED assembly of Stopa et al. to enhance the heat flow from the LEDs to the heat dissipating unit, which keep the high flux LED system at stable condition even at a high temperature environment.

12. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ignatius et al. (US 5,660,461) as applied to claim 1 above.

13. In regards to claim 8, Ignatius et al. disclose the invention substantially as claimed except for reflective edges formed by the cooling of molten metal. However, Ignatius et al. disclose that the reflective barrier is manufactured by using a standard molding technique for a plastic material and additional coating process to provide a reflective metal surface on the molded plastic body (col. 2, lines 18-25). It is well known knowledge to one of ordinary skill in the art to use the standard molding and following cooling processes to form a reflective barrier with metals such as copper or aluminum which has relatively low melting temperature. It would have been obvious to one of ordinary skill in the art at the time of the invention to form a reflective barrier (with edges) by cooling molten metal through the standard molding process to obtain a reflective barrier with a reflective metal surface through a simplified manufacturing process. This will reduce the manufacturing cost by avoiding a difficult and expensive coating process to provide a reflective metal surface on a plastic body.

Conclusion

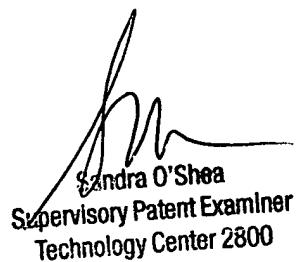
14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Dierschke (US 3,711,789), Begemann (US 6,793,374) and Dubuc (US 2004/0233674) show lighting devices having plural illuminating elements, a reflector(s) and a heat dissipating structure(s).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gunyoung T. Lee whose telephone number is (571) 272-8588. The examiner can normally be reached between 7:30 - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra L. O'Shea can be reached at (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GTL
10/13/2005



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